Ultra *RotaScreen* UVRS

Marabu

UV-curable screen printing ink for Corona-pre-treated or top-coated polyethylene (PE) and polypropylene (PP), self-adhesive films, top-coated polyester PET films, PVC and paper labels

High gloss, very fast curing, good opacity, high chemical resistance, for UV rotary screen printing with cylindrical screen printing stencils from Gallus Screeny® and Stork Screens Rotamesh®

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Field of Application

Substrates

Ultra *RotaScreen* UVRS is suitable for the following substrates:

- PE, PP self-adhesive foils, corona pre-treated or top-coated
- polyester PET foils, top-coated
- PVC, paper labels

For PE foils, we generally recommend high-frequency corona pre-treatment to increase the surface tension to at least 42-44 mN/m.
PP foils should exhibit surface tensions of at least 48 mN/m after high-frequency corona pre-treatment for optimum wetting and adhesion of the UV screen printing ink.

Since all the print substrates mentioned may be different in printability even within an individual type, preliminary trials are essential to determine the suitability for the intended use.

Field of use

Ultra *RotaScreen* UVRS has been developed particularly for rotary screen printing with cylindrical printing stencils from Gallus Screeny® and Stork Screen Rotamesh® used in label printing with modern hybrid/combination printing machines. Both UVRS opaque whites are best suited as opaque and full-area basic layers for combination labels over-printed in UV letter press, UV offset, or – with some restrictions - UV flexo printing inks on transparent foils. Since all UVRS colour shades contain silicone flow-additives, a preliminary check for compatibility of the corresponding UV letter press, UV offset, or UV flexo printing inks is essential. Alternatively the silicone-free ink type UltraRotaScreen UVSF is available.

This ink series is not suitable for direct food contact nor for printing on food contact materials as substances contained in the formulation or introduced by contamination may migrate under certain conditions. Materials that constitute a natural migration barrier are excluded.
If this ink series is nevertheless used for printing on permeable food contact materials, the manufacturer of the printed product is responsible for ensuring that its products comply with legal or industry-specific requirements.
For printing on permeable food contact materials (= without appropriate migration barrier), we recommend our specially designed Ultra *Pack* UVFP / Tampa® *Tex* TPX.

Characteristics

In regard of viscosity and rheology, all Ultra *RotaScreen* UVRS colour shades are press-ready and brilliant at a best possible opacity and high gloss.
All UVRS shades can be embossed with suitable hot stamping foils.
The printed and totally polymerised ink film has a high chemical and mechanical resistance and offers a good flexibility for die-cutting by means of flat bed or rotary tools.

Ink Adjustment

The ink should be stirred homogeneously before printing and if necessary during production. UVRS exhibits a wide application field on different printing machines without the addition of any auxiliaries but can be modified by additives in its reactivity and viscosity if required.

Drying

Ultra *RotaScreen* UVRS is a very fast curing UV-rotary screen printing ink. A UV-drying unit with one or two medium pressure mercu-

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ry vapour lamps (150-200 W/cm power) cures all colour shades at a belt speed of 25-85 m/min.
The curing speed of the ink is generally dependant upon the kind of UV-curing unit (reflectors), number, age, and power of the UV-lamps, the printed ink film thickness, colour shade, substrate in use, as well as the printing speed.
Ultra *RotaScreen* UVRS is a post-curing UV ink which will achieve its final adhesion and resistances after 24 hours. The ink film should pass a cross hatch tape test after having cooled down to room temperature.

Fade resistance

Depending on the colour shade, pigments of medium to good fade resistance are used for Ultra *RotaScreen* UVRS, so the critical yellow-red colour range has an outdoor resistance of up to 6 months.

Stress resistance

After proper and thorough drying, the ink film exhibits outstanding adhesion as well as rub, scratch, and block resistance, and is highly resistant to solvents, alcohol, finger sweat, water, and common fillers.

Range

Basic Shades

922	Light Yellow
924	Medium Yellow
926	Orange
932	Scarlet Red
934	Carmine Red
936	Magenta
950	Violet
952	Ultramarine Blue
956	Brilliant Blue
960	Blue Green
962	Grass Green
970	White
980	Black

High Opaque Shades

170	Opaque White
173	Opaque White
180	Opaque Black

Further Products

904	Special Binder
910	Overprint Varnish
912	Overprint Varnish (Relief)
913	Milky Matt Varnish

UVRS 173 shows a high gloss finish with excellent homogeneous ink flow, best possible degree of whiteness and high opacity.
UVRS 170 has the same characteristics as UVRS 173 with **very** high opacity and very good adhesion even on difficult substrates.
UVRS 904 cannot be recommended as a printing varnish since its transparency is not sufficient.
Overprint Varnish UVRS 910 is a highly reactive and transparent overprint varnish with a high gloss. UVRS 910 has non-yellowing features and is, therefore, best suited as a bronze binder, especially for silver shades.
UVRS 912 Relief Varnish is highly reactive, transparent, and flexible, suited especially for relief printing with a suitable stencil. For a more flexible adjustment of the varnish, UVV 6 thinner can be added.
UVRS 913 Varnish is a milky-matt coating for an attractive no-label look on high quality cosmetic and wine bottles. UVRS 913 is very resistant, and in order to create coloured effects, it may also be mixed with UVRS basic shades.
For braille applications, we recommend UVLB 1 (see separate Technical Data Sheet).

All shades are intermixable. Mixing with other ink types or auxiliaries must be avoided in order to maintain the special characteristics of this ink.

All basic shades are included in our Marabu-ColorFormulator (MCF). They build the basis for the calculation of individual colour matching formulas, as well as for shades of the common colour reference systems HKS®, PANTONE®, and RAL®. All formulas are stored in the Marabu-ColorManager software.

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Metallics

Metallic Pastes

S 191	Silver
S 192	Rich Pale Gold
S 193	Rich Gold
S-UV 191	Silver
S-UV 192	Rich Pale Gold
S-UV 193	Rich Gold
S-UV 291	High Gloss Silver
S-UV 293	High Gloss Rich Gold
S-UV 296	High Gloss Silver
S-UV 297	High Gloss Rich Pale Gold
S-UV 298	High Gloss Pale Gold

These Metallics are added to UVRS 904 or UVRS 910 in the recommended amount, whereas the addition may be individually adjusted to the respective application. We recommend preparing a mixture which can be processed within a maximum of 8 h since metallic mixtures usually cannot be stored. Owing to the smaller pigment size of Metallic Pastes it is possible to work with finer fabrics like 140-31 to 150-31. All metallic shades are displayed in the Marabu "Screen Printing Metallics" colour chart.

Auxiliaries

UVV 6	Thinner	1-6%
UV-TA 1	Thickening Agent	0.1-0.5%
UR 3	Cleaner (flp. 42°C)	
UR 4	Cleaner (flp. 52°C)	
UR 5	Cleaner (flp. 72°C)	

The addition of thinner reduces the ink viscosity if necessary. An excessive addition of thinner will cause a reduction of the curing speed, as well as of the printed ink film's surface hardness. The thinner becomes part of the cross-linked matrix when UV-cured and may slightly change the inherent odour of the printed and cured ink film.

The liquid Thickening Agent UV-TA 1 increases the viscosity and improves the dot definition at higher processing temperatures.

The cleaners UR 3 and UR 4 are recommended for manual cleaning of the working equipment.

Cleaner UR 5 is recommended for manual or automatic cleaning of the working equipment.

Printing Parameters

Ultra *RotaScreen* UVRS has especially been developed for rotary screen printing meshes from Gallus Screeny® (types KS, KM, KF, and HS) and Stork Screens Rotamesh® e.g. RM 305 with 17, 13 or 11 % open surface).

Shelf Life

Shelf life depends very much on the formula/reactivity of the ink system as well as the storage temperature. It is 2 years for an unopened ink container if stored in a dark room at a temperature of 15-25 °C.
Under different conditions, particularly higher storage temperatures, the shelf life is reduced. In such cases, the warranty given by Marabu expires.

Note

Our technical advice whether spoken, written, or through test trials corresponds to our current knowledge to inform about our products and their use. This is not meant as an assurance for certain properties of the products nor their suitability for each application.
You are, therefore, obliged to conduct your own tests with our supplied products to confirm their suitability for the desired process or purpose. The foregoing information is based on our experience and should not be used for specification purposes. All characteristics described in this Technical Data Sheet refer exclusively to the standard products listed under "Range", provided that they are processed in accordance with their intended use and only when used with the recommended auxiliaries. The selection and testing of the ink for specific applications is exclusively your responsibility. Should, however, any liability claims arise, they shall be limited to the value of the goods delivered by us and utilised by you with respect to any and all damages not caused intentionally or by gross negligence.

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Labelling
For Ultra *RotaScreen* UVRS and its auxiliaries, there are current Material Safety Data Sheets available according to EC regulation 1907/2006, informing in detail about all relevant safety data including labelling according to EC regulation 1272/2008 (CLP regulation). Such health and safety data may also be derived from the respective label.

Safety rules for UV printing inks
UV-inks contain some substances which may irritate the skin. Therefore, we recommend to take utmost care when working with UV-curable printing inks. Parts of the skin soiled with ink are to be cleaned immediately with water and soap. Please read the notes on labels and safety data sheets.

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